

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

In re Flint Water Cases

Judith E. Levy
United States District Judge

_____/

This Order Relates To:

Bellwether I Cases
Case No. 17-10164

_____/

OPINION AND ORDER DENYING IN PART AND GRANTING IN PART DEFENDANTS VEOLIA NORTH AMERICA, LLC, VEOLIA NORTH AMERICA, INC., AND VEOLIA WATER NORTH AMERICA OPERATING SERVICES, LLC'S MOTION TO EXCLUDE THE TESTIMONY AND REPORT OF DR. JOHN HOAGLUND [339]

This is one in a series of opinions addressing the admissibility of the testimony and reports of eight experts retained by Plaintiffs in anticipation of the first Bellwether trial. Defendants argue that none of Plaintiffs' experts can meet the standards set by Fed. R. Evid. 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

Currently before the Court is Veolia North America, LLC, Veolia North America, Inc., and Veolia Water North America Operating

Services LLC's (collectively "VNA") motion to exclude the testimony and report of Dr. John Hoaglund. (ECF No. 339.) The LAN and LAD Defendants join VNA's motion. (ECF No. 344.) For the reasons set forth below, VNA's motion to exclude is GRANTED IN PART and DENIED IN PART.

I. Background

Dr. John Hoaglund is an expert in the geology and chemistry of water. (ECF No. 330-30, PageID.15349.) He holds a Ph.D. in geosciences and an M.S. in geology. He currently works at a consulting and education bureau. Dr. Hoaglund has long worked on creating flow models of Michigan's groundwater. (*Id.* at PageID.15354.) Plaintiffs retained Dr. Hoaglund to evaluate "what effects on water quality may have occurred due to changing the water source from Lake Huron to the Flint River, and whether these changes may have affected water treatment." (ECF No. 330-30, PageID.15277.)

Dr. Hoaglund's detailed report provides a chemical and geological analysis comparing untreated Lake Huron water to untreated Flint River water. Using this analysis, Dr. Hoaglund explains how Flint River water

became more corrosive than Lake Huron water, which ultimately led to the leaching of lead into the drinking water.

Dr. Hoaglund's primary focus is on the ion composition of the water. (*Id.*, PageID.15279). An ion is a particle with a positive or negative electrical charge. (Positively charged ions are called cations; negatively charged ions are called anions.) Major ions are prevalent in natural water due to their abundance in the soil- and rock-minerals through which groundwater travels. (*Id.*) Differences in the major ion composition of water change the water's properties and accordingly affect both the corrosive properties of the water and its likely response to standard water treatment processes. (*Id.*)

Dr. Hoaglund concludes that the Flint River is significantly higher in NaHCO_3 (sodium bicarbonate) than is Lake Huron (*Id.* at PageID.15284.) That is so because the water in each of the aquifers feeding into the Flint River is rich in sodium bicarbonate. (*Id.*) Moreover, the groundwater and river flow that ultimately form the Flint River water arriving in Flint's treatment plant pass through the Saginaw Lowlands, which are known to be rich in saline. (*Id.*, at PageID.15283.) This contributes to the water's ultimate transition to a major ion

composition that is high in sodium bicarbonate. (*Id.*, at PageID.15284.) That is significantly different from the Ca-Mg-HCO₃ characterizing Lake Huron's water. *Id.*

This chemical difference is relevant because NA-HCO₃ rich water responds differently than Ca-MG-HCO₃ rich water to standard water treatment procedures. Ordinarily, lime is added to promote mineralization, and the water is then aerated with Co₂ to build up alkalinity levels. (*Id.*, at PageID.15296.) Normally this process increases Ca and HCO₃ in water. However, under alkaline conditions this same procedure results in a "salt out" reaction, or the precipitation of calcium and bicarbonate out of the water. (See *id.* at PageID.15294-5.) (In this context, precipitation is the joining of two ionic bonds in an aqueous solution to form a non-soluble salt.)

According to Dr. Hoaglund, that is what happened during the treatment of Flint River water. Standard lime treatment was utilized to *increase* calcium and bicarbonate in the water, but due to the composition of Flint River water it instead resulted in the *removal* of those elements. Repeated occurrence of the precipitation reaction would result in highly unstable pH levels for Flint River water. In fact, Flint River water (unlike

Lake Huron water that had been used as the former water source) was found to be highly unstable in this way. (*Id.* at PageID.15296 (*citing* Susan J. Masten *et al.*, *Flint Water Crisis: What Happened and Why?*, 108 J. AWWA 12, 22 (2016) (“Masten (2016)”). The unstable pH levels would, in turn, explain the unusual corrosivity of *treated* Flint River water that caused the leaching of lead. *Id.* Dr. Hoaglund’s report thus aims to provide a causal explanation of the process that led to the Flint Water crisis.

The Court heard oral argument VNA’s motion to exclude Dr. Hoaglund’s testimony on November 2, 2021, and it is fully briefed.

II. Legal Standard

The admissibility of expert testimony is governed by Fed. R. Evid. 702, which sets forth three requirements: (1) the witness must be qualified, (2) the testimony must be relevant, and (3) the testimony must be reliable. Fed. R. Evid. 702; *In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 528-29 (6th Cir. 2008). As the Supreme Court explained in *Daubert*, Rule 702 imposes a “gatekeeping” obligation on the courts to ensure that scientific testimony “is not only relevant, but reliable.” *Daubert v. Merrell*

Dow Pharmaceuticals, Inc., 509 U.S. 579, 589 (1993); *See also Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 147 (1999).

Daubert provided a non-exclusive list of factors courts may consider when evaluating reliability: (1) whether the theory or technique at the basis of the opinion is testable or has been tested, (2) whether it has been subjected to peer review or been published, (3) what the known error rates are, and (4) whether the theory or technique is generally accepted. *Daubert*, 509 U.S. at 593; *see also In re Scrap Metal*, 527 F.3d at 529 (listing same factors). Not every factor needs to be present in every instance, and courts may adapt them as appropriate for the facts of an individual case. *Kumho* 526 U.S. at 150.

“Rejection of expert testimony is the exception, rather than the rule.” *United States v. LaVictor*, 848 F.3d 428, 442 (6th Cir. 2017) (quoting *In re Scrap Metal*, 527 F.3d at 529-30)). Nevertheless, the burden is on Plaintiffs to show by a “preponderance of proof” that the proffered expert meets the standards of Fed. R. Evid. 702 and *Daubert*. *Pride v. BIC Corp.*, 218 F.3d 566, 578 (6th Cir. 2000) (quoting *Daubert*, 509 U.S. at 592).

III. Analysis

VNA argues that all of Dr. Hoaglund's opinions must be excluded because (1) he is unqualified, (2) his opinions are not sufficiently reliable to meet the *Daubert* standard, and (3) his opinions are irrelevant under Federal Rule of Evidence 402.

For the reasons set forth below, Dr. Hoaglund is qualified to testify regarding the chemistry and geology of water, but not regarding proper water treatment procedures. His testimony regarding the chemical makeup of the Flint River water is sufficiently relevant and reliable to be admissible under *Daubert* and Rule 702.

A. Qualification

The parties broadly agree on the scope of Dr. Hoaglund's qualifications: he is a qualified expert on the topics of aqueous chemistry and hydrogeology, but not on the topic of water treatment. *Compare* ECF No. 330, PageID.20319 (VNA asserting Dr. Hoaglund is not an expert in water treatment or corrosion control); *with* ECF No. 364, PageID.22409 (Plaintiffs asserting Dr. Hoaglund is qualified "to render opinions relating to the geochemical properties of the Michigan water sources relevant to this case, as well as the science of water chemistry.")). Because Dr. Hoaglund is not—and does not claim to be—an expert in the

treatment of drinking water, he may not provide any standard of care testimony about water treatment practices.

Dr. Hoaglund's report contains some references to alleged negligence by those who treated Flint River water. (*See, e.g.*, ECF No. 330-30, PageID.15298.) According to Dr. Hoaglund, it should have been evident to those in charge of the Flint Water Treatment Plant ("FWTP") that Flint River water would not respond favorably to the lime treatment that was used. Because this standard of care testimony is outside of the scope of Dr. Hoaglund's expertise, it is inadmissible. *Cf. Berry v. Crown Equipment Corp.*, 108 F.Supp.2d 743, 749 (E.D. Mich. 2000) (Court must determine whether "the expert's training and qualifications relate to the subject matter of his proposed testimony") (citing *Kumho*, 526 U.S. at 157).

According to VNA, virtually all of Dr. Hoaglund's testimony would require expertise in water treatment. Thus, VNA argues that Dr. Hoaglund also should not be permitted to testify about the expected effects of the lime treatment utilized at the FWTP. (ECF No. 339, PageID.20317-20319.) This argument overstates the stringency of Rule 702's qualification requirement, which "has always been treated

liberally.” *Pride v. BIC Corp.*, 218 F.3d 566, 577 (6th Cir. 2000) (quoting *In re Paoli RR Yard PCB Litig.*, 916 F.3d 829, 855 (3d Cir. 1990)). As an aqueous chemist, Dr. Hoaglund is qualified to explain the consequences that adding lime (or any of the chemicals used during treatment) would have on the chemical composition of the water.

B. Reliability

VNA next argues that all of Dr. Hoaglund’s opinions are unreliable because he (1) merely parrots the work of Dr. Masten, (2) has done no relevant research, (3) uses too few samples to support his hypotheses, and (4) provides inaccurate information about the salinity of Flint River water.¹

Experts may not simply “parrot” the work of others. *See, e.g., Gould Elecs. Inc. v. Livingston City Rd. Comm’n*, 2020 6793335 at *9 (E.D. Mich, Nov. 19, 2020); *Arista Recs LLC v. Usenet.com Inc.*, 608 F.Supp.2d 409, 424 (S.D.N.Y. 2009) (excluding expert who “simply regurgitate[d]”

¹ VNA also argues that Dr. Hoaglund should have compared untreated Flint River water to *treated* Lake Huron water, because Flint previously received treated Lake Huron water through the Detroit Water and Sewerage Department (“DWSD”). (ECF No. 339, PageID.20306.) But Dr. Hoaglund’s aim was to explain why Flint River water is more difficult to treat, and why it would respond differently to standard treatment procedures. To make that point, Dr. Hoaglund did not need to analyze any water treated by DWSD.

others' opinions). But this rule does not prohibit reliance on peer-reviewed work to inform one's own conclusions. Such reliance is part and parcel of the scientific enterprise and therefore permissible. *Best v. Lowe's Home Ctr's, Inc.*, 563 F.3d 171, 181 (6th Cir. 2009) (quoting *Kumho*, 526 U.S. at 152) (expert must "employ in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field").

Here, Dr. Hoaglund relies on a paper by Dr. Masten for its detailed description of the FWTP and its treatment process. *See* Masten (2016), Fig. 2. Using his own expertise as an aqueous chemist, Dr. Hoaglund then explains why those treatment processes would have caused the water to undergo high fluctuations in pH. While Dr. Masten records those fluctuations, her paper does not explain why they occurred. Dr. Hoaglund's work therefore builds on previous (peer-reviewed) research. Such reliance is clearly permissible. *Best*, 563 F.3d at 181; *compare Arista Recs*, 608 F.Supp.2d at 424 (expert could not be helpful because his testimony merely parroted the opinions of others and did not involve the "application of specialized knowledge").

VNA's other objections to Dr. Hoaglund's testimony point to more serious concerns regarding the reliability of his work. It is true that Dr. Hoaglund did not conduct any further research into the treatment methods utilized at the FWTP. For instance, he assumed without verifying that ferric chloride was used in the treatment process, and he did not know the dosage in which sodium bisulfate was added. (ECF No. 339, PageID.20324-20325.) Moreover, because the FWTP itself did not properly collect complete information regarding the water, Dr. Hoaglund partially relied on six samples taken by the MDEQ for his analysis. (ECF No. 429, PageID.32451.) Using FWTP information and the MDEQ samples, Dr. Hoaglund "cobbled together one...complete set of major ion data." (*Id.*). As Dr. Hoaglund himself admits, this scarcity of data makes "complete confirmation" of his hypotheses impossible. (ECF No. 330-30, PageID.15296). Ultimately, then, Dr. Hoaglund does not offer more than a hypothesis about what *could* have caused the corrosivity of the water, not an iron-clad conclusion about what *did* cause it.

The Sixth Circuit has discussed the admissibility of an expert's hypothetical explanation in two contrasting decisions. In *Jahn v. Equine Serv.'s, PSC.*, the Court permitted a veterinarian to "use their expertise

to piece together what probably happened” to the plaintiffs’ horse. *Jahn*, 233 F.3d 383, 390 (6th Cir. 2000). Such testimony was permissible, the Court explained, because “although [the expert] did not know the cause of death...[they] identified what they believed to be the probable cause.” *Id.* The Court remarked that due to the “lack of medical records...certainty is not to be found in this case.” *Id.*

By contrast, in *Tamraz v. Lincoln Elec. Co.* the Sixth Circuit excluded hypothetical testimony to the effect that exposure to manganese caused the plaintiffs’ Parkinson’s disease. 620 F.3d 665 (6th Cir. 2010). Quoting from *Daubert*, the Court explained that “the scientific project is advanced by broad and wide-ranging considerations of a multitude of hypotheses...Conjectures are of little use, however, in the project of reaching a quick, final, and binding legal judgment.” *Id.* at 677 (quoting *Daubert*, 509 U.S. at 597) (cleaned up).

Dr. Hoaglund’s conclusions more closely resemble the testimony in *Jahn* than in *Tamraz*. In *Tamraz*, an expert testified to a hypothetical *general causal link* between a chemical and a disease which was unsupported by the scientific literature. *Tamraz*, 620 F.3d at 675-77. Because the general claim made by plaintiffs’ expert had not yet been

scientifically confirmed, permitting it into evidence would allow “the law to get ahead of science.” *Id.* at 677. In contrast, like the expert in *Jahn*, Dr. Hoaglund used uncontroversial scientific methods to “piece together what probably happened” *in this particular case. Jahn*, 233 F.3d at 390. Dr. Hoaglund’s approach to aqueous chemistry and hydrogeology is not itself based on merely hypothetical assumptions, nor are his general causal claims in any way conjectural. It is only Dr. Hoaglund’s application of reliable methodology to the particular facts of this case that is hypothetical. *Compare Tamraz*, 620 F.3d 675-77 (expert’s general causal claims merely hypothetical) *with Jahn*, 233 F.3d at 390 (expert permissibly used reliable methodology to derive a hypothesis about what probably happened). *Jahn* makes clear that such testimony is permissible. 233 F.3d at 390.²

VNA also argues that Dr. Hoaglund’s claims about the flow of groundwater into the Flint River are factually inaccurate. According to VNA, the Flint River does not receive its water from the Marshall and

² The Court recognizes that *Jahn* likely represents the outer boundaries of the Sixth Circuit’s tolerance for hypothetical expert testimony. The Sixth Circuit has continued to cite *Jahn* in its *Daubert* opinions, however, and it therefore continues to be binding law. *See, e.g., In re Scrap Metal*, 527 F.3d at 530 (discussing *Jahn* with approval).

Saginaw aquifers, contrary to Dr. Hoaglund's conclusions. (ECF No. 339, PageID.20337.) But this is a straightforward factual disagreement outside of *Daubert's* scope. "Weaknesses in the factual basis of an expert's opinion" present questions for the jury. *In re Scrap Metal*, 527 F.3d at 530 (quoting *United States v. L.E. Cooke Co.*, 991 F.2d 336, 342 (6th Cir. 1993)).

C. Relevance

VNA next argues that Dr. Hoaglund's testimony is irrelevant because it does not help the jury resolve any disputed issue of fact.

Evidence is relevant for purposes of Rule 702 when there is a "factual issue in dispute that expert testimony can clarify." *United States v. LaVictor*, 848 F.3d 428, 442 (6th Cir. 2017) (citing *Lee v. Smith & Wesson Corp.*, 760 F.3d 523, 527–28 (6th Cir. 2014)). As the Sixth Circuit has recently reiterated, "the relevancy bar is low," and "the rejection of expert testimony is the exception, rather than the rule." *LaVictor*, 848 F.3d at 442 (quoting *In re Scrap Metal*, 527 F.3d at 529–30)); *see also Mactec, Inc. v. Bechtel Jacobs Co., LLC*, 346 F. App'x 59, 77 (6th Cir. 2009) (relevancy requirement should be read broadly) (quoting *Morales v. Am. Honda Motor Co.*, 151 F.3d 500, 516 (6th Cir. 1998)).

Dr. Hoaglund's testimony does not directly address any disputed question of fact. Plaintiffs intend to use Dr. Hoaglund's testimony to "educate the jury" about the underlying causes of the Flint Water Crisis and to underscore "the importance of water treatment." (ECF No. 364, PageID.22435.)

Although Dr. Hoaglund cannot testify about appropriate water treatment procedures as such, his analysis illustrates a key fact: all water sources are not created equal. A treatment that would work perfectly well with water from one source could have precisely the opposite effect with another. As the Advisory Committee's Comments to Rule 702 make plain, experts may permissibly educate the jury on just such background issues:

[I]t might also be important in some cases for an expert to educate the factfinder about general principles, without ever attempting to apply these principles to the specific facts of the case. For instance, experts might instruct the factfinder on the principles of thermodynamics, or bloodclotting, or on how financial markets respond to corporate reports, without ever knowing about or trying to tie their testimony into the facts of the case. The amendment does not alter the venerable practice of using expert testimony to educate the factfinder on general principles.

Fed. R. Evid. 702; *See also In re Heparin Prod's Liab. Litig.*, 803 F.Supp.2d 712, 745 (N.D. Ohio 2011) (quoting Fed. R. Evid. 702). Accordingly, Dr. Hoaglund's testimony is not irrelevant under Federal Rule 702.

IV. Conclusion

For the reasons set forth above, VNA's motion to exclude the testimony and report of Dr. Hoaglund is GRANTED IN PART and DENIED IN PART.

IT IS SO ORDERED.

Dated: February 3, 2022
Ann Arbor, Michigan

s/Judith E. Levy
JUDITH E. LEVY
United States District Judge

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was served upon counsel of record and any unrepresented parties via the Court's ECF System to their respective email or first-class U.S. mail addresses disclosed on the Notice of Electronic Filing on February 3, 2022.

s/William Barkholz
WILLIAM BARKHOLZ
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